



# UNIDADES DE POTENCIA HIDRÁULICA

UNIDADES Y CONTROLADORES  
HIDRÁULICOS, DE AHORRO  
ENERGÉTICO



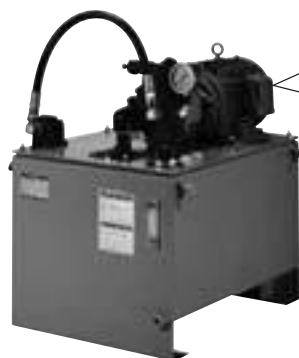
油研工業株式会社



## ■ Energy-Saving Hydraulic Units and Controllers

**Substantial energy saving of hydraulic units has been achieved by the inverter drive.**

Hydraulic units equipped with variable displacement pumps feature greater energy-saving than those with fixed displacement pumps. Yuken's energy-saving hydraulic units and controllers utilize rotational frequency control with an inverter. This innovative configuration solves the problem of efficiency losses suffered by induction motors operating at light loads and ensures significant energy savings.



### Efficiency Characteristics of Induction Motor

- At Rated Output: Maximum Efficiency
- At Light-load: Significant Efficiency loss

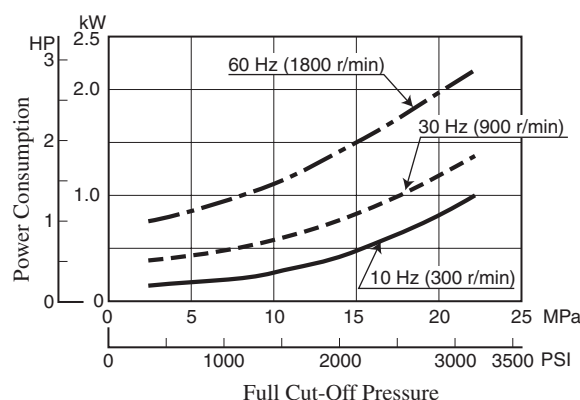
### Rotational frequency control is effective for reducing power loss.

Extensive energy saving is possible by detecting a load pressure with the pressure sensor and keeping the motor rotation at the optimum level required for pressure holding. Based on the concept above, the following three different types of inverter-driven system and packages have been developed.

- **Energy-saving control system for hydraulic units (Energy saving controller)**  
For modification of existing hydraulic units to energy-saving type
- **Equipped with the variable displacement vane pump <YM-e Pack>**
- **Equipped with the variable displacement piston pump <YA-e Pack>**

### ● Example of reduction of power consumption with rotational frequency control

Combination of the A37 piston pump and 7.5 kW (10 HP) motor



## Features of YUKEN energy-saving units / controllers

- **Extremely easy operation and maintenance**  
Adjustment and maintenance works are very easy as basically the conventional power unit is used.
- **Significant reduction of power consumption**  
With rotational frequency control, more than 40% of power consumption at pressure holding is possible compared to conventional hydraulic units.
- **Low Noise**  
Especially the noise level at the full-cutoff is reduced.
- **Discharge volume can be set to a certain volume at 50/60 Hz.**  
Regardless the power supply frequency, the rotation speed at the maximum discharge volume can be set by the inverter within the range from 1500 to 1800 r/min.
- **Continuous operation is possible even at breakdown of the pressure sensor or the inverter.**  
Operation at a certain rotation speed is possible even without receiving a signal from the pressure sensor due to breaking of wire or malfunction of the pressure sensor. In case of malfunction of the inverter itself, the same operation mentioned above is possible by reconnecting of the primary power supply to the electric motor.

# Energy-Saving Hydraulic Units – Equipped with Vane Pump <YM-e Pack>

Energy-saving unit equipped with the high performance variable displacement vane pump.

## Specifications

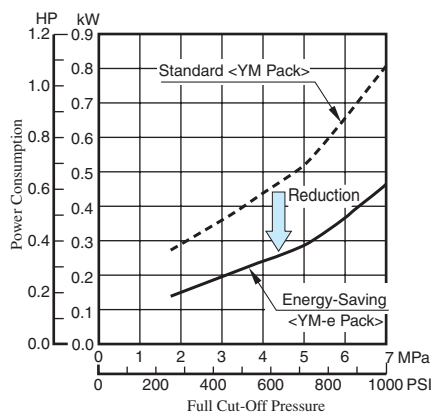
Model Numbers	Max. Operating Pressure MPa (PSI)	Setting Range of Rotation Speed at Max. Discharge r/min	Mass (Does not included hydraulic fluid) kg (lbs.)
E-YM8-A-2-※-30	3.5 (510)	1500 – 1800	0.75 kW: 43 (94.8) 1.5 kW: 49 (108) 2.2 kW: 56 (123)
E-YM8-B-2-※-30	7.0 (1020)		
E-YM16-A-2-※-30	3.5 (510)		
E-YM16-A-2-※-30	7.0 (1020)		



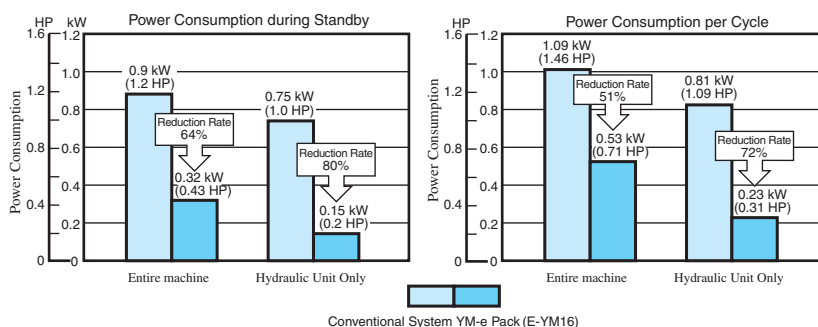
## Model Number Designation

E-YM	8	-A	-2	-0.75	-30
Series Number	Geometric Displacement	Pressure Adj. Range	Reservoir Capacity	Electric Motor	Design Number
E-YM: Compact Energy-Saving Hydraulic Unit YM-e Pack	8: 8.6 cm³/rev (.525 cu.in./rev)	A: 1.75–3.5 MPa (255–510 PSI) B: 3.5–7.0 MPa (510–1020 PSI)	2: 20 L (5.3 Gal.)	0.75: 0.75 kW (1 HP) × 4P 1.5: 1.5 kW (2 HP) × 4P	30
	16: 15.6 cm³/rev (.952 cu.in./rev)	A: 1.75–3.5 MPa (255–510 PSI) B: 3.5–7.0 MPa (510–1020 PSI)	2: 20 L (5.3 Gal.)	0.75: 0.75 kW (1 HP) × 4P 1.5: 1.5 kW (2 HP) × 4P 2.2: 2.2 kW (3 HP) × 4P	

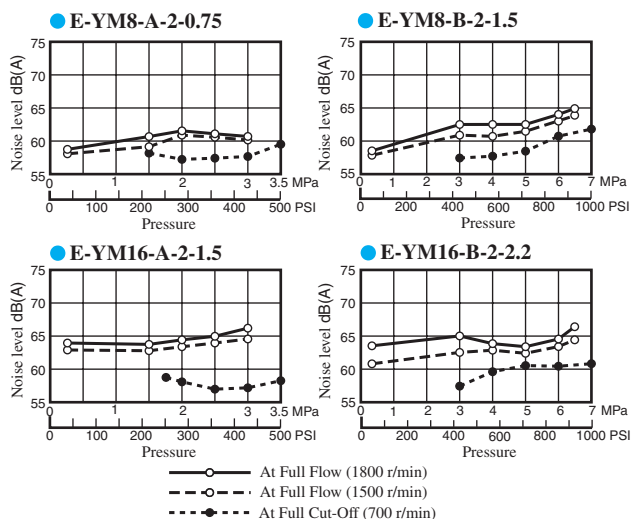
## Power Consumption at Full Cut-Off Pressure



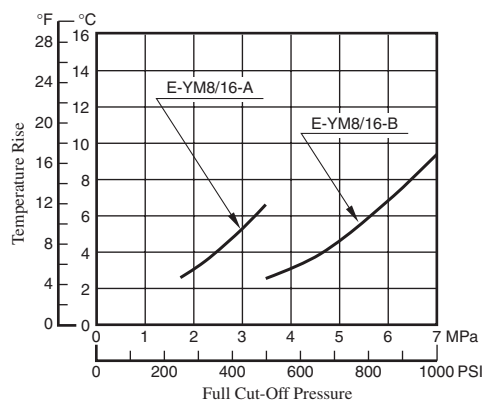
## Example of Power Consumption of Grinding Machine



## Noise Characteristics (Example) [Measurement Point: 1 m (3.3 ft.) horizontally away]



## Characteristics of Oil Temperature Increase in the Reservoir (At 700 r/min)



Consult Yuken when detailed material such as dimensions figures is required.



油研工業株式会社



**MEXICO BRANCH OFFICE**

Roberto Diaz No. 401  
Ciudad Industrial  
Aguascalientes, Ags.  
México  
20290

[4ManPro@4ManPro.com](mailto:4ManPro@4ManPro.com)  
(449) 171 3420  
[www.4ManPro.com/SPA/](http://www.4ManPro.com/SPA/)



**USA BRANCH OFFICE**

4ManPro®  
708 Main St.  
10<sup>th</sup> Floor  
Houston, Tx, USA  
77002

[4ManPro-USA@4ManPro.com](mailto:4ManPro-USA@4ManPro.com)  
+1 (832) 871 5022  
[www.4ManPro.com/ENG/](http://www.4ManPro.com/ENG/)